

Shybean Digest



Official Publication
of
THE AMERICAN SHYBEAN ASSOCIATION

VOLUME 2 • NUMBER 6



APRIL • 1942

MARKET SUMMARY

	SOYBEANS		
	April 11	April 4	March 11
May (old)	1.88	1.89½	1.94½
May (new)	1.89½A	1.91B	1.96
July (old)	1.90½	1.91½	1.96½
July (new)	1.91½A	1.93B	1.95½
October	1.84	1.85½	1.89

	SOYBEAN OIL		
	Tanks, Midwest Mills	—	11½c

	SOYBEAN OILMEAL		
	(April 10)	(April 2)	\$39.50
May	\$37.30 @37.60	\$38.00 @38.50	
July	37.25 @37.50	38.10 @38.40	39.00 @39.50
October	36.60 @37.25	37.50 @38.00	38.50 @39.00

CASH CONVERSION SCALE		
1 Bushel Soybeans, wt. 60 lbs.		\$1.79
I N T O		
8.8 lbs. crude Oil @ 11½c		1.034
49.5 lbs. Meal @ 1.765c		.874
		1.908
Gross Processing Margin per Bu.		11.8c
Gross Processing Margin per Bu. Last Month		11.2c

Note: The values listed here are relative, and cannot correspond with your own transactions. Using your own figures, you can compute your own scale. This scale will show general trends.

STANDARD SHORTENING SHIPMENTS

(By Members of Institute of Shortening Mfgs., Inc.)

Week ending March 7	7,092,975
Week ending March 14	7,405,071
Week ending March 21	5,817,891
Week ending March 28	4,443,732
Week ending April 4	4,735,105

Soybean sellers were offish as the government prepared to purchase remaining seed beans at \$2.00 per bushel. The market weakened 4 to 7c during the month, with jerky day to day market conditions. Soybean oilmeal fell off, and oil maintained the maximum allowable.

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CAMDEN, OHIO



THE Soybean Digest

Vol. 2

APRIL ★ 1942

No. 6

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TELLING THE STRAIGHT STORY

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POWERFUL efforts are being made by state agricultural agencies to meet the soybean production goals which have been set by the Federal government. In many cases a correct approach is being made to the farmers. In others the approach is incorrect.

The vast majority of American farmers are patriotic and want to do all that they can to aid the war effort. To simply tell them that they are sure of a high price for their soybeans is not only discrediting their patriotism — it is poor strategy as well.

PROFITABLE as soybeans are, they are not more profitable than corn, and they should not be grown on slopes that are unsuitable for corn. Talk like this will not get anyone to grow soybeans who does not LIKE to do so.

Farmers in the principal soybean growing areas who have reasonably level land, should be told to grow soybeans — not because they will make a lot of money from them, and not because they will like to grow them — but because the United States of America NEEDS soybeans.

Farmers are not masters of military strategy and not many are "Saturday night generals." But they all know what is meant when they are told that Japan has taken from us the source of a billion pounds of vegetable fats per year, and that we NEED 3 billion pounds more as a result of the war effort.

THE campaign now being waged by the Iowa Agricultural extension service, is an example of the correct way. In 25,000 pamphlets distributed in the 30 primary and 30 secondary Iowa soybean-producing counties, farmers are addressed in the following language:

When we lost the products from Malaya, the Philippines and the Dutch East Indies to the Japanese we lost — in addition to rubber and tin and spices — a billion pounds of vegetable oils.

We use these oils in food products, soap, paints, varnishes, linoleum, printers ink, industrial lubricants, and in the manufacture of metals, textiles, leather goods and glycerine.

We now need more fats and oils than ever before. We need more for food because our armed forces and hard-working civilians need more fat in their diet for energy. We need more oil for making glycerine for explosives; we need more for paints for ships, tanks, guns, planes and hundreds of other uses. The Department of Agriculture estimates that we will need more than 12 billion pounds of fats and oils in 1942 — that's 3 billion more than we produced last year!

We can pull in our belts on some things and get along with less, but we will need all the fats and oils we can possibly produce.

That isn't all. Great Britain lost 2 billion pounds too — that of her total supply. We are the only large source of supply for England, Canada, Russia (and ourselves). We may get a little more from South America, but not enough to really do the job.

How can we get more vegetable oil? Southern farmers can raise more peanuts, and we can raise more flax seed. But the biggest possible source of additional vegetable oil is from the soybean.

Iowa farmers can do much toward winning the war by producing lots of soybeans this year. Soybeans are a vital war crop.

Every farmer on a reasonably level farm who is growing oats alone should plant at least 10 or 20 acres of soybeans this year to help make up the fat and oil shortage and to increase his own income. Soybeans could well be substituted for most of the oats being grown for grain not used for a nurse crop, and still leave plenty of oats for new seedlings and enough for feed.

Soybean acreage can be more than doubled on most farms in the level land areas without interfering with good farm management.

ACCORDING to E. S. Dyas, Iowa extension agronomist and former president of the American Soybean Association, some counties have asked for enough copies of this pamphlet to distribute to every farmer in the county. Meetings are planned as a follow-up where they are called for.

This pamphlet is a good piece of work, and good results may be expected in Iowa, where an 84 per cent increase in soybean acreage has been asked. The American farmer has never let down his country — particularly when the facts of a situation are presented to him straight from the shoulder.

THROUGH Paul North Rice, chief of its reference department, the New York Public Library has informed The Soybean Digest that it would like to have the issues of November, 1940, and February and June, 1941, to complete its file on the publication.

As The Digest itself has no more of these issues available for distribution, it will be appreciated if readers having them will send them direct to the New York Public Library, Fifth Avenue and Forty-Second Street, New York, N. Y.

THE suggestion of a New York newspaper that the government use the \$700,000,000 Agricultural Adjustment Administration appropriation this year to "paying farmers to produce more corn, cotton, wheat, sugar, rice, and tobacco" is a prime illustration of the misinformation which is being spread by a powerful section of the press.

This paper chooses to ignore the nation's real needs in agricultural production in order to prejudice its readers against the producers. The fact that this paper has consistently tried by every means to discredit the nation's war effort does not lend confidence to its motives.

This is a typical effort to pit class against class. It is the Hitler technique.

TODAY the nation's chemists have a golden opportunity to make great strides forward. Made to order for them is the oil and rubber shortage.

We hope that in the coming months we can bring the story of developments looking toward the solution of these difficulties through the use of soybean oil.

THE

Soybean Digest



Published by the American Soybean Association, Hudson, Iowa, as a service to its members. Forms close on 10th of month. Subscription price, to association members, \$1.00 per year, to non-members, \$1.50 per year. Advertising rates on application.

GEO. M. STRAYER, Editor

ROBERT BLISS, Managing Editor

VOL. 2 · NO. 6

"BATTLE OF THE SOYBEAN"

—CONTINUED

REPORTS from various States indicate that considerable progress is being made in the campaign to push above soybean War acreage goals.

ILLINOIS

April 1 intention-to-plant survey indicates that the Illinois acreage of soybeans for beans will be 3,900,000, or 300,000 above the acreage goal set in January.

Seed supplies are adequate, and, according to Elmer F. Messman, acting chairman of the Illinois Agricultural Conservation Committee, the seed purchase program has been given wide publicity by press and radio.

The following varieties are approved by the State War Board: Illini, Manchu, Mukden, Wisconsin 3, Dunfield, Mandell, Richland, Morse, Arksoy, Chief, Macoupin, Mansoy, Mt. Carmel, Indiana 5, Indiana 7, and Scioto.

IOWA

See editorial page for description of promotional work, and March SOYBEAN DIGEST for approved varieties. Indications are that goal of 1,750,000 acres of soybeans for beans may be exceeded.

INDIANA

Prof. K. E. Beeson reports active program to meet state's goals. Points out that agricultural extension service has consistently promoted soybean production.

Ross W. Sittler, acting chairman, announces War Board-approved varieties for Indiana: Dunfield, Richland, Illini, Manchu, Mandell, Chief, Macoupin, Indiana No. 5 and No. 7, Mansoy, Scioto, and Mt. Carmel.

OHIO

April 1 intention-to-plant survey indicates soybean acreage of 1,403,-

000, as compared with 923,000 acres in 1941. Prof. D. F. Beard predicts government request of soybeans for beans may be exceeded. Approved varieties: Wisconsin No. 3, Wisconsin 606, Richland, Mingo, Illini, Manchu, Dunfield, Scioto, and Chief.

WISCONSIN

Varieties approved by State War Board: Common Manchu, Illini, Mukden, Manchu No. 3, Manchu 606, Mandarin, Richland, and Habaro.

MICHIGAN

According to Tom Kennedy of State AAA, "Soybean acreage seems to be booming in Michigan." April 1 intention-to-plant indicates 180,000 acres — 88 per cent increase over 1941. Manchu, ItoSan, Mandarin, OAC-211, Dunfield, Illini, Mandell, Scioto, and Mukden approved by state war board.

MISSISSIPPI

T. M. Patterson, chairman of War Board, announces Arksoy, Macoupin, Mamredo, Mamloxi, Tokyo, Ogden, Volstate, Wood's Yellow, Tennessee Nonpop, Palmetto Delredo and Mamotan. McNamara of Delta Experiment Station recommends Arksoy, Macoupin, Mamredo and Mamloxi as best for delta area. Professor O'Kelly recommends Arksoy, Mamloxi and Mamredo for hill areas.

ARKANSAS

Largest increases in production expected to come in those sections of the state that have been growing soybeans and have machinery available for harvesting in connection with production of other crops such as rice, vetch, lespezeza and other crops harvested with combines.

Approved varieties include Mamloxi, White Biloxi, Ogden, Macoupin,

Delnshot, Delta, and Arksoy.—E. W. Copeland, Jr.

NORTH CAROLINA

Kit Haynes, of State AAA, reports pledges of 433,562 acres of soybeans, compared with 237,444 acres in 1941.

Varieties which have been approved by the State U.S.D.A. War Board include: Arksoy, Clemson, Herman (Haberlandt), Mamredo, Mammoth Yellow, Tokyo, and Wood's Yellow.

— s b d —

IOWANS COULD PRODUCE MORE

According to the Wartime Farm Survey, a regular feature of the Iowa Farm Economist, Iowa State College publication, soybean acreage in north central Iowa could be increased 120 per cent over 1941 figures without interfering with good farm management.

This conclusion was based on information obtained from 61 farm records in this part of Iowa, under the direction of Walter W. Wilcox and Howard L. Parsons.

The Farm Survey says indications are that farmers in north central Iowa are not planning to increase soybean acreage as much as the survey indicates they could without interfering with good farm management practices.

— s b d —

Joins Coast Guard

N. M. Crain, assistant sales manager of the Western Division of the A. E. Staley Company Feed Department answered Uncle Sam's roll call February 16 "for the duration." He has enlisted in the Coast Guard. Crain has a host of friends in the soybean industry, who join in wishing him the best of luck and a safe return.

GROWERS' QUESTION BOX

By J. B. PARK,
Ohio State University

Q. I've been drilling soybeans in 8 inch rows with a wheat drill. Some seasons I can control weeds with the rotary hoe but oftener they get out of control. How do yields in solid drilled beans compare with cultivated rows?

A. A great many people are asking that question. We do not have a complete answer to it as yet. In 1941 we had experiments at three locations in Ohio on that problem. In every test 21 inch rows yielded more than eight inch, by an average of about 20 percent. With wider spacings than 21 inches the yields dropped off steadily, but even in 42 inch rows the yields were about as good as in the eight inch.

Q. Do all varieties behave the same in this regard?

A. No, they don't. Early maturing varieties are smaller, and they lose more yield in the wide rows than large late varieties do.

Q. Then wide rows make it possible to control weeds and still get a good yield.

A. That's right, but of course cultivation costs something and competes with corn for labor.

Q. How much seed is needed for cultivated rows? Do wide rows save seed?

A. They do, and that's important this year. 42 inch rows require only about two pecks of seed. 21 inch rows take about one bushel and 8 inch rows take two bushels. On the question of yield, the Illinois Experiment Station reports a 5 year comparison of 8 inch with 21 inch rows. The 21 inch rows consistently yielded more, with an average difference of 4.7 bushels.

Q. How do they plant and cultivate 21 inch rows?

A. That spacing is too narrow for corn equipment to handle, but sugar beet implements are ideal for the purpose. A wheat drill can be used for planting 21 to 24 inch rows by stopping up some spouts, but cultivation is a problem.

Q. You mentioned suitable varieties. Who determines whether a variety is suitable or not?



J. B. Park

A. It's done largely by farmers along with the processors who buy the crop. The Agricultural Experiment Station conducts tests of many varieties in many parts of the state and that helps in choosing the best varieties. The processor wants a yellow bean with a high oil content. The farmer wants a variety that will get ripe, that yields well, that stands up and does not shatter its seed on the ground. Northern Ohio requires an earlier maturing variety than central and southern Ohio.

Q. It takes more than one variety, then? What are some of the best ones?

A. For early varieties in northern Ohio especially when wheat is to follow soybeans, we recommend Wisconsin No. 3 and Wis. 606. For a medium early, we recommend Richland but only on productive soil.

For medium maturing varieties there are Mingo, Dunfield and Illini. For a late variety Scioto is excellent. All of these varieties yield well, do not shatter and have a good oil content.

Q. Are any varieties so poor in oil that the processors will not buy the crop?

A. There is an important difference between varieties in oil content. Processors do not like to use colored beans which make dark

colored meal. Also their oil content is low. Some processors have announced that they will not buy the McClave variety except at a discount of 25 cents a bushel. It is lowest in oil of any yellow variety we have tested recently. Mandell is also low in oil content but processors have not yet penalized it.

A pound of soybean oil is worth five times as much as a pound of soybean meal. Processors cannot afford to use low oil varieties and the farmer is working to his own advantage when he grows a high oil variety.

Q. Is it profitable to use fertilizer on soybeans? If so, what kind?

A. I have no doubt that there are soil conditions where direct application of fertilizers improves the growth of soybeans. Men in whom I have great confidence have reported profitable use of fertilizers on soybeans. However, I feel sure that such cases are exceptional. In several experiments in various parts of Ohio, fertilizers have not affected the yield enough to be measurable. And yet we know that soybeans grow better on rich land than on poor land. The best plan seems to be to put all or most of the fertilizer on other crops in the rotation, wheat, corn, hay, which do respond very definitely to it. Manure does stimulate soybean growth, but most farmers prefer to put it on corn or new seedings of grass.

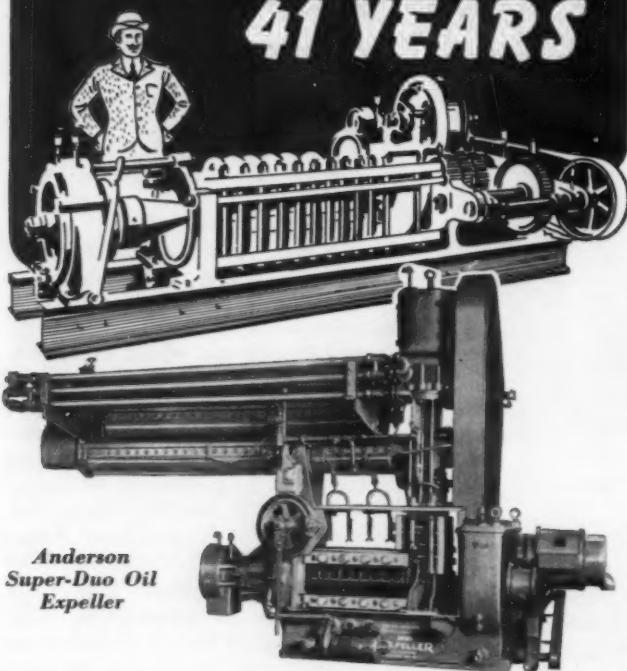
Q. Can soybeans take the place of clover and clover-grass sods in the rotation for soil maintenance?

A. Definitely no, unless the whole crop is plowed down. When soybeans are removed for hay, very little is left on the land by the roots. The effect is nearly as bad as that of a corn crop. When the soybean crop is combined and the straw left on the ground the net effect on soil productivity is a small negative value, much better than corn but not at all equal to a clover sod. On sloping land soybeans should be used cautiously because of danger of erosion. Soybeans should be thought of as a cash grain crop and not as a soil building crop.

Q. Do early maturing beans yield as much as late ones?

(Continued on page 9)

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SOYOIL FOR HUMANS

By J. L. GABBY

Member Soybean Nutritional Research Council

FATS and oils add flavor to the human diet. As a concentrated source of energy they give a satisfying quality to foods not obtainable from any other food constituent. Compared on a weight basis fats and oils have twice as much fuel value as have carbohydrates and proteins. Foods rich in fat give a meal a staying power which keeps away that hungry feeling because of the high fuel value and the fact that fats are apparently more slowly absorbed by the digestive tract than are other foods.

Vitamin Source

Recent years of nutritional research have pointed out that fats and oils are more than simple energy carrying materials for the human body. It has been shown that fats and oils are carriers for several of the long list of vitamins known today. While soybean oil carries relatively little of the vitamins A and D, it is a good source of Vitamins E, F, and K. Vitamin E is the anti-sterility vitamin, Vitamin K is the important new substance required for normal blood coagulation while Vitamin F is really a group of special fat constituents known as unsaturated fatty acids. Soybean oil is probably the most concentrated source of these unsaturated fatty acids to be found among our common edible oils. It is more than fifty times as concentrated in this factor as is butter.

Soybean oil is today a very important commodity as a human food. During the year of 1941, 339,577,000 pounds of soybean oil were used in the manufacture of edible products. This oil went into the production of mayonaise, margarine, hydrogenated shortenings and other fat containing foods.

Produce Hormones

Soybean oil carries minute traces of compounds known as sterols. One of the most recent achievements of chemical research on soybean oil is the commercial production of these sterols. It has been found possible to make certain of the sex hormones from these soybean sterols. These sex hormones are normally produced within the body but under certain special conditions the body is unable to manufacture sufficient of these materials to carry on normal functions. During such periods the administrations of these hormones allows the body to carry out its normal functions. The manufacture of sex hormones from soybean sterols is still in its infancy. However, the possibility of alleviating much human distress lies ahead of us. As time progresses, we may learn to use the soybean as a source of many valuable medicinal compounds.

A Valuable Food

Thus we see that the soybean is furnishing not only a valuable supply of concentrated food material in the form of oil but is also supplying valuable amounts of fat-soluble vitamins and also materials from which some of the hormones can be made. Soybean Oil is indeed becoming a valuable product in the field of human nutrition.

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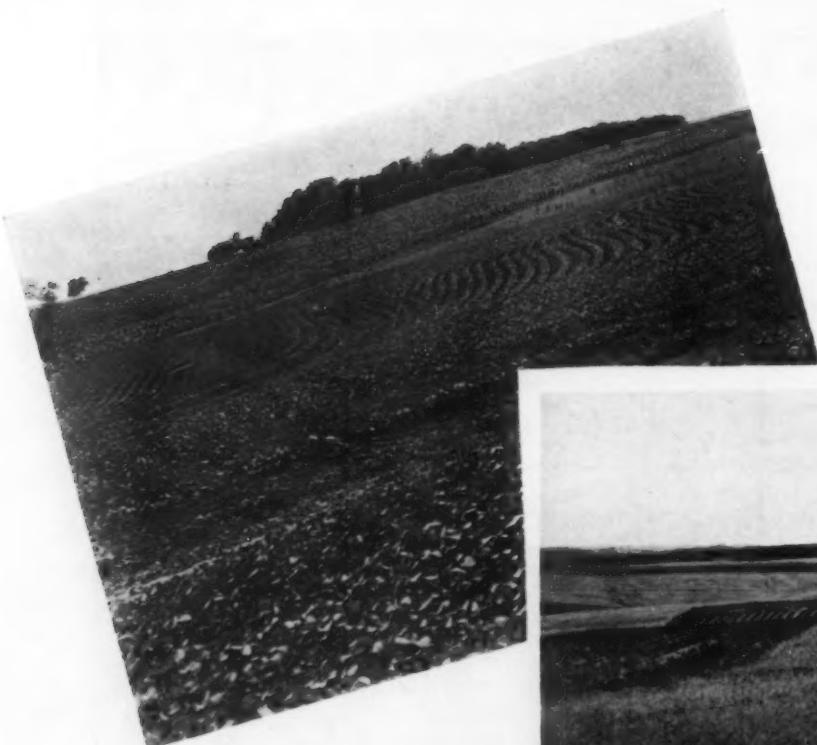
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LET'S SOLVE



By L. R. COMBS
Soil Conservation Service

WITH "food for freedom" production goals calling for an increased soybean acreage this year, farmers with a regard for keeping their topsoil are considering how to grow the needed soybeans without useless erosion. The production goals call for a national increase from about 5,855,000 acres to 9,000,000 acres in order to help provide oils necessary for production of war materials.

Although they are a legume and add nitrogen to the soil when properly inoculated, soybeans are not to be classed with other legumes from the standpoint of erosion control and use of land. According to Howard Ream, assistant regional agronomist for the Soil Conservation Service, Milwaukee, soybeans should be considered in the same class with corn as far as soil and climatic requirements and their ability to induce erosion are concerned. If so considered, substituted for corn in the rotation and guarded by the needed soil conservation practices, they can be grown without excessive damage to the land. With the price conditions that prevail this year, they undoubtedly will be a profitable crop for many Corn Belt farmers.

Soy Roots Thinner

Soybean roots do not spread or form thick mats nor do they produce



LEFT: Soybeans planted on the contour. This is an effective device for checking erosion.

BETWEEN: Something has been added — strip cropping. This soybean grower has double insurance against erosion.

the close growing cover at the surface as do other legumes and grasses or even small grains. They leave the soil in a loose condition and on many farms the crop is cut and hauled from the land leaving nothing to protect the topsoil. These are some of the reasons why soybeans if not properly handled may set the stage for serious erosion.

All soybeans cannot be grown on flat land for the same reason that corn can't — there isn't enough level land. But Mr. Ream gives the following suggestions which, if followed, will reduce erosion damage to a minimum:

1. Select land for soybeans which will not erode or if no such land is available — as it will not be on most farms — choose land which is as little subject to erosion as possible and on which soil conservation measures can be applied.

2. Grow soybeans in rotations containing grasses and legumes such as alfalfa or red clover and timothy or brome grass which will improve the productivity of the soil and will provide organic matter to help in controlling erosion while soybeans occupy the land.

3. Where it is necessary to grow soybeans on land subject to erosion (certainly on any land with a slope of more than 2 percent, or a drop of 2 feet to each 100 feet) they should be planted on the contour. The beans should be drilled solid whenever possible instead of in rows. Drilling solid provides more protection because the beans cover more of the surface and the leaves reduce the impact of raindrops on the soil. In some cases, the weed problem may make it necessary to plant soybeans in cultivated rows on the contour. Contour tillage means planting on the level or contour across the slope instead of up and down hill. Each tillage mark then acts as a miniature terrace. Contour tillage often increases production because it conserves moisture.

4. Winter grains adapted to the locality should be seeded to provide winter cover as soon as possible after the soybeans are harvested. This is important because much erosion occurs during the fall, winter, and spring on unprotected fields which have been in soybeans. Combining the soybeans and leaving the straw on the land also helps control erosion.

V SOYBEAN EROSION Problem!

5. Apply manure and fertilizer according to local soil conditions and inoculate seed to increase yields and plant growth thereby helping control erosion.

Soil Loss Cut

Experiments at the Missouri Agricultural Experiment Station show that continuous soybeans in rows of cornplanter width followed by rye as a winter cover caused 94 percent as much soil loss as did continuous corn. Continuous soybeans seeded solid followed by rye as winter cover crop caused 43 percent as much soil loss as continuous corn. All of the above crops were seeded in straight rows.

This test shows not only the similarity of soybeans to corn in their ability to encourage erosion but also

contour tillage, strip cropping, or terracing as would be required if the field were in corn and properly protected.

Marshall-Tama Rotations

General instructions regarding the safe upper limit of slope on which soybeans or any other crop can be grown are dangerous and frequently misleading because not only the slope but also the soil type, the amount of erosion that has taken place, and the crop which soybeans follow must be considered. As an example, however, SCS soil scientists and agronomists make the following recommendations for Marshall and Tama soils where not more than half of the topsoil has been lost.

On slopes up to 2 percent, a 4-year rotation of corn, corn, oats, and

meadow usually is considered sufficient to control erosion. As previously indicated, a year of soybeans can be grown in place of a year of corn assuming that a winter crop follows the soybeans. On slopes of from 2 to 5 percent, the same 4-year rotation can be used if the field is contour tilled or terraced, depending on the length of the slope. Generally speaking, contour tillage or contour strip cropping should be sufficient on slopes up to about 500 feet in length but on longer slopes where run-off water has a chance to accumulate in volume and get a long sweep at the soil, terracing probably would be required.

Slopes of 5 to 9 percent can be handled with the same 4-year rotation and terracing or a 5-year rotation of 2 years corn, small grain, and 2 years meadow and contouring. On a 9 to 14 percent slope, safety would require a 6-year rotation of 2 years corn, one of small grain, and 3 years of meadow plus contouring, or a 5-year rotation of 2 years corn, 1 year of small grain, and 2 of meadow plus terracing.

Soybeans probably shouldn't be grown on more than a 14 percent

(Continued on page 12)

LEFT: Washing may become serious during the long months when the fields are bare. This field was planted to soybeans.

BETWEEN: Winter grain has been seeded as a cover crop on soybean ground.



the value of seeding soybeans solid. It is logical to assume that if the winter cover crop had been omitted, soybeans in rows would have resulted in as much or more erosion than corn.

The question is sometimes asked regarding the steepest slope on which soybeans should be grown? The best answer to this is that since soybeans cause about the same or slightly more erosion than corn, land which is not suited to corn is not suited to soybeans, that a year of soybeans can be grown in place of a year of corn in any good rotation, and that the field requires about the same conservation practices such as



WHY INOCULATE SOYBEANS--?

DR. A. G. Norman, professor of soils at Iowa State College, says: "In view of the present emergency and the need for maximum production of beans of the highest possible quality, I am not sure that the recommendation should not be to inoculate all soybeans wherever they may be planted.

"The minimum recommendation would be that all beans planted on land on which soybeans had not previously been grown, and all beans planted on land not in beans within the past three seasons, should be inoculated.

"As a rider I would add the reminder that inoculation alone does not insure success with beans if other soil factors are not taken care of. Beans may be more acid-tolerant than some other legumes but that does not mean that increases in yield might not follow liming."

Dr. Norman lists six reasons why soybean inoculation "should be given careful attention":

1. The bacteria forming nodules on the soybean do not inoculate any other agricultural crop grown in

Iowa, therefore the soybean bacteria will only be present in any field if it has previously borne a crop of nodulated beans.

2. Soybeans have had no steady place in rotations in Iowa, and are a crop of comparatively recent introduction. Much of the increased acreage is therefore likely to be on land not hitherto in beans.

3. The nitrogen requirements of a good bean crop are heavy and are centered round a period of 10-12 weeks. Only on the very best land would uninoculated beans find sufficient soil nitrogen to give maximum yields and protein production. In well-nodulated beans on the ordinary run of soils the nitrogen fixed by the bacteria supplements substantially that obtained from the soil so that there is an improvement in yield and quality over uninoculated beans. The improvement in quality is less obvious than increased yield, and takes the form of a higher protein content.

4. One of the effects of the increased acreage of beans will be to push this crop onto the poorer land,

in which the supply of soil nitrogen is not high and on which, therefore, the results of inoculation will be proportionately greater, if other soil factors such as acidity or amount of available phosphate are not limiting.

5. Some strains of soybean bacteria are more effective than others in the fixation of nitrogen, and, moreover, these do not behave quite the same on different varieties of soybeans. This fact is now recognized by the better producers of inoculants and their cultures therefore usually consist of a mixture of strains found to be effective on several of the common soybean varieties.

6. Not much is known of the longevity or persistency of the efficient strains of soybean bacteria in soil following a crop of beans. The bacteria are released into the soil in vast numbers when the nodules disintegrate, but they are not especially vigorous and have to compete for food with the ordinary soil bacteria. The numbers fall rapidly and after a time there may be insufficient present to produce good nodulation on a

(Continued on page 12)



**CENTRAL
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CENTRAL SOYA CO., INC., and
MILLS: DECATUR, IND., and GIBSON CITY, ILL.

MORE . . . More soybeans — more eggs, more milk, more meat! Soybean oil meal, and soybean oil are now a matter of defense production and we must work accordingly. A big job ahead for the grower and feeder, for the elevator, processor, feed manufacturer — a vital job that must be done well.

Soybeans hold a double value for the grower-feeder — a good cash crop, and a major source of protein for feeds.

Growers and feeders in the areas served by our plants will find us prepared — to handle their increased acreage of beans, and to furnish them with properly balanced feeds for increasing growth and production in livestock and poultry.



in Master Mix Feeds and Concentrates

McMILLEN FEED MILLS
GENERAL OFFICES, FORT WAYNE, IND.



**CENTRAL
BRAND**
41%
SOYBEAN
OIL MEAL

QUESTION BOX

(Continued from page 3)

A. No. In general, yield of varieties is about in proportion to the length of their growing seasons, provided they mature. A long season variety has more days to work and so gets more done.

Q. How thick should soybeans be planted?

A. Tests have shown that soybeans should be planted fairly thick in the row, $\frac{1}{2}$ to 1 inch apart. They help each other to push up a soil

crust, where a single bean couldn't make it. No matter what space is used between rows the seeds should be thick in the row.

Q. Should soybeans be inoculated every year?

A. When soybeans are planted on land for the first time inoculation is necessary for a satisfactory crop. Usually the second crop is better than the first because of better inoculation. After that it is debatable whether annual re-inoculation pays. Some growers think it pays.

Q. How early should soybeans be planted?

A. About the same time as corn. Tests have shown that planting in the first half of May give higher yields than later. But early planting makes more trouble with weeds. Planting early makes it almost necessary to use cultivated rows or weeds will take the field. By waiting until late May or even early June, several crops of weeds can be killed by disking before the soybeans are planted.



A good crop of soybeans will grow on good land without proper inoculation—but it grows at an extra cost of at least \$10 per acre in nitrogen taken from the land.

Neither prior crops nor the presence of nodules guarantee the proper inoculation necessary to take this nitrogen "Free From the Air."

Always Use



**KALO
INOCULATION**

"THE PEER OF THE BEST"

Guarantees proper inoculation at a cost of only pennies per acre

**TOP RANKING QUALITY
AT NEW LOW PRICES**

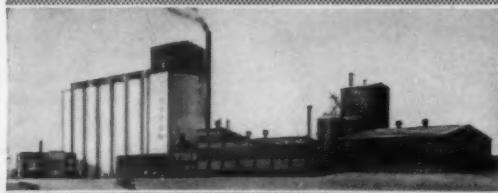
2 bushel size.....	\$.30
5 bushel size.....	.45
25 bushel size.....	1.95
30 bu. size (6-5 bu. cans).....	2.60

**KALO INOCULANT
COMPANY**

QUINCY, ILLINOIS



FOSTORIA, OHIO



DES MOINES, IOWA



CHAMPAIGN, ILLINOIS



CAIRO, ILLINOIS

TOWARD THE NEW GOAL

The 1942 soybean goal of 9,000,000 acres will mean new problems for the industry. Swift & Company, with four soybean mills advantageously located in the largest soybean-producing areas, welcomes the opportunity to devote the full extent of its facilities and experience in helping to market efficiently this coming big crop of soybeans.



SWIFT & COMPANY

Soybeans...and People

SOYA flour is superior to wheat flour as a source of Vitamin B-complex. That is the gist of information compiled by the Department of Nutritional Research of the Archer-Daniels-Midland Company, Minneapolis, Minn.

The life-giving morale-boosting substances usually associated in the B-complex are Vitamin B-1 (thiamin), Vitamin B-6 (pyridoxine), panto-

thenic acid, riboflavin, nicotinic acid, biotin, inositol, and choline.

A table was computed showing the relative importance of members of the complex in 100 gram quantities of low fat, medium fat, and full fat soya flour and wheat flour. Soya flour of all three types was shown to be superior to wheat flour in Vitamin B-1, pantothenic acid, riboflavin, and biotin.

Wheat flour was definitely superior to soya flour in inositol, while data for wheat flour's content of choline was lacking. Low fat and medium fat soya flour were superior to wheat flour in nicotinic acid, and medium fat soya flour and full fat soya flour were superior in pyridoxine.

(Continued next page)



LEGUME-AID

GUARANTEED INOCULANT

It is one thing to provide a proper culture medium in the laboratory for selected strains of useful nitrogen-fixing bacteria. It is another thing to guarantee, under practical distribution conditions, that those bacteria will be delivered to the user in a live, healthy, vigorous condition. LEGUME-AID comes through your regular trade channels under just such a guarantee.

LEGUME-AID is conveniently packaged in small units designed to treat measured amounts of seeds. Each unit package is protected by an inner bag of moisture-retaining Pliofilm which assures the activity of the bacteria if used before the guarantee date stamped on the label. The unit boxes, in turn, are packed in attractive, easily handled, quantity cartons. Consult your seed dealer or inquire direct why so many Soybean growers use this quality inoculant. Also used and recommended for the inoculation of Clover, Alfalfa, Peas, Beans, Vetch, Lespedeza, Peanuts and all other legume crops. Assist your crops with LEGUME-AID, the active, Pliofilm-protected inoculant.

SEED-AID HORMONE Seed Treatment

A synthetic hormone compound in powder form, which has produced remarkable increases in many different crops by simply dusting on seeds. SEED-AID helps nature through stimulating the formation of a strong root system that results in more vigorous growth. Its use does not interfere with the application of seed disinfectants or inoculants. SEED-AID costs so little that it may be employed freely. Only 1c to 5c to treat an acre of corn; other seeds in proportion. Recommended for Cotton, Corn, Sugar Beets, Small Grains, Peas, Beans, Alfalfa, Clovers, Grasses and Garden Seeds. Ask for particulars.

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GRAIN BAGS • SACKS
BURLAP BAGS*
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SAVE VITAL
MATERIALS

ORDER NOW!

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PREPAID PRICES

16 oz. \$1.00
1 qt. 1.35
½ gal. 3.50
1 gal. 6.50

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GUARANTEED

from

THE

Soybean Digest

Hudson • Iowa

B COMPLEX

(Continued)

Fred H. Hafner of the A-D-M staff, has the following to say regarding the Vitamin B content of soya flour:

Heat Factor

"The Vitamin B-1 content of soy flour will depend to a considerable extent on the amount of heat that is applied during the course of its manufacture. A toasted soy flour, for instance, will have a very low Vitamin B-1 content ranging from zero to 70 International units per 100 grams of soy flour. Unheated soy flours, on the other hand, such as our A-D-M Nutrisoy XXX Flour, will contain as much as 400 to 500 International units of Vitamin B-1 per 100 grams. The values that we have listed for low fat, medium fat and full fat soy flours are flours that have been processed with a moderate amount of heat sufficient to debitter the flour and mildly cook the protein but not sufficient to toast the product.

"Since wheat receives practically no heat during the course of its processing, it is not subject to the variations that occur in soy flour. However, soy flour is to be generally considered a much better source of Vitamin B-1 than wheat or wheat flour.

"Soy flours do not actually contain

THE VITAMIN B-COMPLEX CONTENT OF VARIOUS TYPE SOY FLOURS AS COMPARED WITH WHEAT

(per 100 grams of material)

Specific Member of B-Complex	Type of Soy Flour			Wheat Flour
	Low fat	Medium Fat	Full Fat	
Vitamin B ₁ , (thiamin).....	200-300 I.U.	200-300 I.U.	230-280 I.U.	75-125 I.U.
Vitamin B ₆ , (pyridoxine).....	75-100 units	375-500 units	1500-2000 units	130 units
Pantothenic Acid.....	840-1960 mcgs.	840-1960 mcgs.	1400 mcgs.	110 mcgs.
Riboflavin.....	400 mcgs.	400 mcgs.	300 mcgs.	90 mcgs.
Nicotinic Acid.....	6.0 mgs.	5.7 mgs.	4.85 mgs.	5 mgs.
Biotin.....	73 mcgs.	70 mcgs.	59 mcgs.	6.85 mcgs.
Inositol.....	220 mgs.	205 mgs.	175 mgs.	1240 mgs.
Choline.....	225 mgs.	225 mgs.	225 mgs.	?

appreciable Vitamin B-6 as such but they do contain Vitamin B-6 sparing substances (Steenbock) so that their presence less Vitamin B-6 is required to cure or prevent avitaminosis.

Pantothenic Acid

"Pantothenic acid has come into prominence recently as a calcium salt due to the fact that it has the reported ability to cure certain types of gray hair. Soy flour is a considerably more potent source of this factor than is wheat or wheat flour, containing from eight to eighteen times as much according to actual biological assays using chicks.

"Soy flour is well known as a superior source of riboflavin to wheat and other cereal grains. . . . The nicotinic acid content of soy flour and wheat flours is practically identical. . . . Soy flour contains according to

most recent assays approximately ten times the quantity of biotin that exists in wheat and wheat flour. This is an appreciable margin and places soy flour in a class where it may be regarded as an important source of this dietary factor.

"Inositol, one of the more recent factors to be isolated from the B complex, occurs as phytin in the soybean as well as being a constituent part of the cephalin molecule in the soybean phosphatide fraction. . . .

"Contrary to the general belief, low fat or solvent extracted soy flour is just as good a source of choline as is either medium fat soy flour or full fat soy flour. We have proved this fact by our own analyses in this laboratory using an accurate photoelectric assay procedure for the determination. . . ."



DANNEN'S Soybean Oil Meal

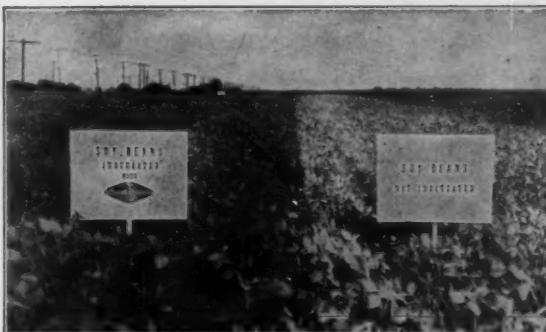
Here you see the meal sacking floor in our modern soybean mill. Meal from the soybeans you raise is bagged here for shipment all over the western United States, thus furnishing you with a year round market for the beans you raise.

Use Dannen's Soybean Oil Meal on your farm and help build a market for your own beans.

Dannen Grain & Milling Co.
ST. JOSEPH, MISSOURI

Urbana Culture
Superior Legume Inoculator

INOCULATION FOR SOY BEANS



EFFECT OF INOCULATION ON SOY BEANS

Treatment	Yield		Pounds Protein per ton
	Seed	Seed	
Inoculated	46.6 bu.	705	316.2
Not Inoculated	34.7 bu.	621	292.4
Gain for Inoculation	11.9 bu.	84	23.8

(University of Illinois Bulletin No. 310)

Prepared only by

THE URBANA LABORATORIES
Urbana, Illinois

INOCULATE?

(Continued from page 8)

later crop. The length of time that must elapse is apparently very variable. In one study (N.Y.) out of 50 fields that had carried soybeans, 15 did not retain sufficient organisms 4 years later to give good nodulation, though others that had not carried beans for periods up to 25 years did do so. No simple rule can be made, therefore, since persistence in the soil seems to vary widely with other soil factors not yet understood.

— s b d —

SOYBEAN EROSION

(Continued from page 7)

slope but if they are planted on a 14 to 17 percent slope, and since such land is too steep to terrace, it would be necessary that the soybeans be substituted for the corn in a 5-year rotation with 3 years of meadow and that they be grown on the contour or in a strip cropping system.

These recommendations are general and apply to Marshall and Tama soils which have lost not more than half of the topsoil. Much Marshall

and Tama soil has lost more than half its topsoil and more intensive control would be required. On soil types more subject to erosion, longer rotations including more grasses and legumes should be used than are recommended for the same slope of Marshall and Tama soils. Or practices such as contouring, strip cropping, or terracing should be applied on land of lesser slope.

— s b d —

Seed Directory

A charge of \$1 has been made for listing in the February, March and April issues. Quantity for sale and variety are included.

Ohio

Delphos — L. W. Adam, 110 bushels Dunfields, 80 bushels certified.

Maumee — W. N. Woods, 100 bushels Richland, 150 bushels Bansei edible soys.

Indiana

Fort Wayne — O. L. Bryant & Son, R. 4, 400 bushels Richland certified, 700 bushels Dunfield certified.

Illinois

Arthur — Turner Seed & Supply, 1,200 bushels certified Chief, 5,000 bushels Illini, 3,000 bushels Dunfield, 1,000 bushels Mansoy.

Findlay — T. F. Beery, 700 bushels Richlands.

Mason City — Ainsworth Seed Company, 1,500 bushels Illini, 50 bushels certified Chief.

Iowa

Breda — Edward Putbrese, 700 bushels certified Mukden.

Marcus — John Sand, 5,000 bushels Mukden certified, Richland certified.

Hudson — Strayer Seed Farm, 1,000 bushels Mukden, 500 bushels Richland, 300 bushels Dunfield, 30 bushels Kanro (veg.), 5 bushels Bansei (veg.).

Minnesota

Faribault — Farmer Seed & Nursery Company, Manchu, Habaro, Mukden, Richland.

Wisconsin

Elkhorn — S. B. Simons & Sons, 400 bushels No. 3 Manchus, 500 bushels Mukdens.

Owen — Owen Canning Corporation, Soygood (veg.). No quantity specified.

New Jersey

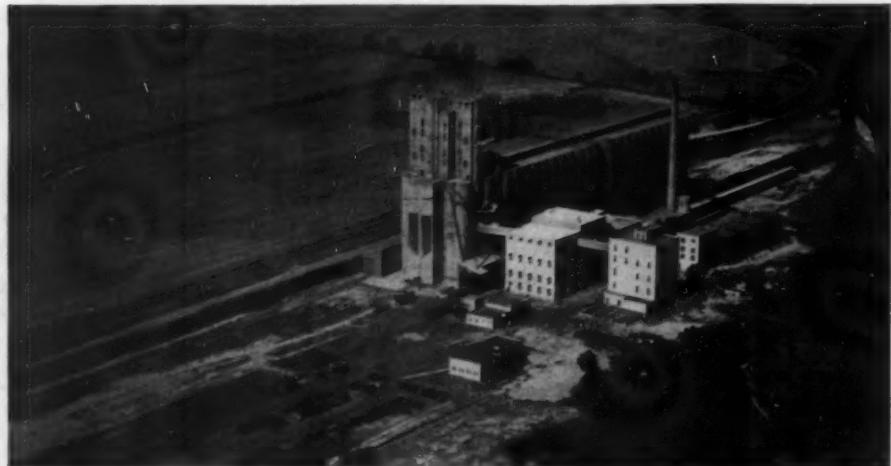
Vineland — George A. Mitchell, Magnolia Road, 18 bushels Imperial (veg.), 3 bushels Jogun (veg.).

Virginia

Richmond — T. W. Wood & Sons, Wood's Yellow, Mammoth Yellow, Tokyo, Virginias, Wilsons.

— s b d —

According to an announcement by Secretary Wickard, butter prices will be stabilized during the remainder of the calendar year at a minimum of 36 cents per pound for 92-score butter, carlot basis, at Chicago, with comparable prices for other grades.



A. D. M. Soybean Processing Plant . . Located at Decatur, Illinois.

Other Soybean Processing
Plants Strategically
Located at:

CHICAGO

TOLEDO

MILWAUKEE

MINNEAPOLIS

BUFFALO

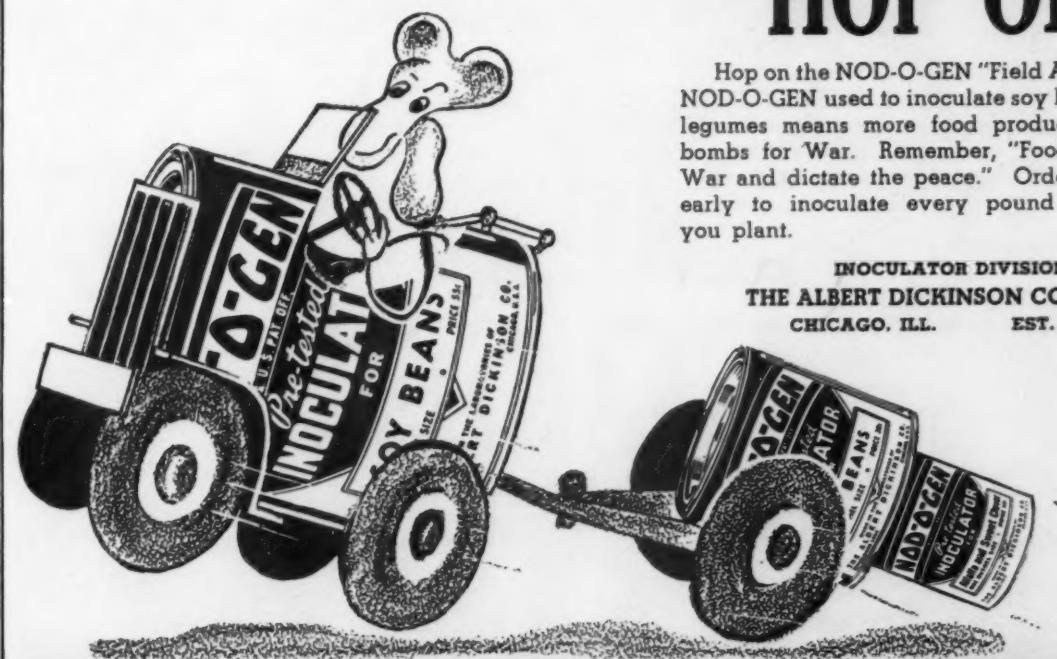
The Mark of



Quality Soybean Products

WHAT IS GOOD-WILL?
Good-Will is the disposition of a satisfied customer to return to the place where he has been well treated.
The Archer and Daniels families have been engaged in the Oil Milling business for a century (1840-1940), and the good-will which has been built up during those hundred years is jealously guarded in every transaction.
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"HOP ON!"

Hop on the NOD-O-GEN "Field Artillery." More NOD-O-GEN used to inoculate soy beans and other legumes means more food produced . . . more bombs for War. Remember, "Food will win the War and dictate the peace." Order NOD-O-GEN early to inoculate every pound of soy beans you plant.

INOCULATOR DIVISION
THE ALBERT DICKINSON COMPANY
CHICAGO, ILL. EST. 1854

NOD-O-GEN America's Largest Selling
The Pre-tested Inoculator Complete Inoculator Line

When You Are in the Market

To SELL Soybeans or
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Get in Touch With Our Processing Plants

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. . . Purina Mills, St. Louis, Mo.





This illustration shows what NITRAGIN inoculation did for soybeans. In a practical demonstration at an Eastern agricultural experiment station uninoculated soybeans failed to survive in their struggle for existence against weeds.

Weeds tell the story on the surface, but there is more to be told in the soil. The uninoculated soybeans slowly starved to death because effective nitrogen fixing bacteria were not present. From the very start, the NITRAGIN inoculated soybeans were able to take their much needed nitrogen from the air, as evidenced by their more rapid, luxuriant growth, dark green leaves, and ultimate survival in the face of actual crop failure in the uninoculated plot. And the cost of such effective Nitrugin inoculation is about 12 cents per acre.

Abundant experiment station evidence proves that it pays to inoculate every seeding of legumes, whenever and wherever they are sown. Wisconsin research workers say that . . . "inoculation with good strains of the proper organisms is decidedly beneficial and in general is insurance against crop failure due to lack in numbers of effectiveness of the soil bacteria." Illinois reports that "most farmers will find soybean inoculation a good insurance and a practice that should be followed yearly."

For Your Protection

You cannot tell if your soil is well fortified with sufficient numbers of the right kind of bacteria, but you can be sure if you inoculate your soybeans with NITRAGIN "S" Culture. Used by farmers for over 40 years, NITRAGIN is the oldest, most widely used inoculant. It is recognized by agricultural leaders for its quality and dependability, and is produced in the largest, most modern laboratory of its kind in the world. For your protection and soybean crop insurance, get NITRAGIN from your seedsman.

FREE LEGUME BOOKLET

Tells how to grow better soybeans, alfalfa, clovers, etc. for cash, feed, and soil building. Also special soybean bulletins. Write to—

THE NITRAGIN CO., Inc.
3871 N. Booth St., Milwaukee, Wis.

